

FINAL PERFORMANCE REPORT



Federal Aid Grant No. F21AP00067 (E-93-R-1)

**Integrating State and Federal Permit Data for Threatened and
Endangered Species into the Oklahoma Biodiversity Information
System**

Oklahoma Department of Wildlife Conservation

Grant Period: January 1, 2021 – June 30, 2023

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State: Oklahoma

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Grant Program: Cooperative Endangered Species Conservation Fund, Traditional Conservation

Grant Title: Integrating State and Federal Permit Data for Threatened and Endangered Species into the Oklahoma Biodiversity Information System

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ABSTRACT:

The objective of this project is to integrate Annual Scientific Collection Report (ASCR) occurrence records into the Oklahoma Biodiversity Information System (OBIS). We entered 9,276 occurrence records from approximately 460 ASCR into the database. These records represent approximately 731 different taxa.

OBJECTIVES:

To ensure biodiversity data for threatened and endangered species submitted with the Scientific Collector's Permit and U.S. Fish and Wildlife Service Section 10 Recovery Permit reports are integrated and curated in the OBIS and insure accessibility to ODWC Wildlife Diversity Program (WDP) and U.S. Fish and Wildlife Service Biologists.

INTRODUCTION:

Informed and accurate conservation planning relies on access to relevant data, past and present, for populations of rare and federally listed species. An important source for these data is the ASCR submitted to ODWC. While some of these data reside in the OBIS, legacy data contained in older reports do not. Oklahoma conservation professionals will be able to readily access these data once available in Oklahoma, and will thereby facilitate conservation planning, ranking, and species management for these taxa.

APPROACH:

- 1) **Review OBIS** to assure concurrence with data fields in the ASCR. OBIS is a data platform that serves as a repository, archive, and resource for collaborators within conservation-oriented agencies in Oklahoma. The core datasets of OBIS are the ONHI element occurrence database, the Distribution of Oklahoma Amphibian and Reptiles by Recorded Sightings (DOKARRS), the Oklahoma Mammal Specimen Records (OMSR),

and the Oklahoma Bird Specimen Records (OBSR). OBIS is a relational database consisting of five core tables. Nonetheless, it was necessary to review the OBIS structure to determine that relevant ASCR fields are included in existing tables and that ODWC Wildlife Diversity Program (WDP) biologists can enter, edit, and disseminate these data. Resolving incongruences in the structure of OBIS could require the assistance from a programming specialist.

- 2) **Data entry.** WDP staff provided the P.I.s with paper and/or electronic versions of the ASCR applications. These data were entered into the OBIS by an undergraduate student assistant. The data entered by students has been reviewed by the P.I.s for quality assurance.

RESULTS AND DISCUSSION:

Data recorded for this project came from Part B (Part C in older reports) of the ASCR, which consists of four columns: 1) *common or scientific name*, 2) *location*, 3) *date*, and 4) *number collected* with subheadings for males, female, unknown, and total (Figure 1).

1. Review OBIS data fields and evaluate sufficiency to capture report data

At the outset of the project, we entered data from ten records from select ASCRs to determine if the data field structure of OBIS could accommodate the data provided in the reports. We determined that the existing database structure readily accommodated the data available in the reports.

Data were added from the OBIS ‘add an occurrence’ page. ASCR fields corresponded to the following in OBIS: *common or scientific name* = scientific name, *county where collected and water body where collected* = county, and *collection date* (or month) = event date (when only a month and/or year was provided, those data were entered in the verbatim date field). The *number collected* with subheadings for males, female, unknown, and total fields correspond with the OBIS fields of sex and individual count.

2. Entry of data from the Annual Scientific Collection Reports

We entered records from 460 collector permits, representing 9,276 occurrences for approximately 731 different taxa. Of the taxa reported, 684 were identified to the species level, and 47 to the genus, family or order only. The records for species tracked by the Oklahoma Natural Heritage Inventory totaled 230, with 2,375 occurrences. Note that each row in an ASCR was entered as an individual record. So, if an ASCR contained a table with 30 rows, then 30 individual records were entered.

Many reports failed to populate all columns in the report or provided data that were so vague as to be deemed useless. For example, one report listed “+10,000 invertebrates” in the *common or scientific name field*. In the scientific names field, OBIS can accommodate identifications to the species, genus, family, or order level. Records for broad categories such as vertebrate, invertebrate, or vascular plant cannot be captured in OBIS; the relevance of such records is highly questionable. Some collectors failed to provide a county and write simply “throughout Oklahoma.” Although OBIS can accommodate incomplete or vague localities in the *verbatim*

locality field, the value of occurrences listed at the state level is useless for species protection and such records were not entered into OBIS.

The most useful reports provided a list of each taxon collected with a county of occurrence, latitude and longitude, a date with day/month/year, and the number of individuals observed (Figure 1).

Whether a report contained data that was entered into OBIS or not, all reports were filed alphabetically by the collector's last name.

Part B

If you captured any species listed in **Appendix 1**, fill out the table below for each **individual**. Please include the specific location and county of collection. For aquatic species, include the name of the stream or river, where applicable. Attach additional sheets as needed.

Common or Scientific Name of Each Species	Location - Latitude/Longitude or GPS Coordinates; Legal Description or Directions from nearest Town; Include County and Waterbody	Collection Date	Gender (M, F, Unk) and Age (Adult / Juv.)	Disposition (e.g. released, preserved)
Am. Burying Beetle	35*27448 -95.01193	8/5/2018	F/A	released
Am. Burying Beetle	35*14050 -95.09423	8/5/2018	F/A	released
Am. Burying Beetle	35*14050 -95.09423	8/6/2018	F/A	released
Am. Burying Beetle	35*14050 -95.09423	8/6/2018	M/A	released

Figure 1: An example of a completed Annual Scientific Collection Report. Note, however, that number of individuals is missing.

RECOMMENDATIONS:

As currently formatted, the ASCR does capture the basic data needed for a species occurrence record, that is, if it is fully completed by the reporter. To enhance the quality and relevance of data for conservation planning and species management provided in an ASCR, we provide the following recommendations by field:

1. **Common or scientific name.** Requiring collectors to provide the most complete level of taxonomic identification possible is of the utmost importance for conservation ranking and species management. We recognize that the identification of some taxonomic groups is more challenging than others. Stream invertebrates, for example, can often be identified to the family or order level only. But when a collector is unable to identify the organisms encountered to the lowest possible taxonomic rank, we recommend that the collector elaborate why and if/when samples will be fully identified, and where those specimens will be deposited.

2. ***County where collected and water body where collected:*** We encountered records that listed the *county where collected and water body where collected (for aquatic species)* as “throughout Oklahoma” or provided no listing at all. For taxa tracked by the Oklahoma Natural Heritage Inventory and SGCNs such records are meaningless. Collectors must be required to submit a county of occurrence for ***each*** collection at least, even when collections were made in multiple counties.

We ***strongly*** recommend that collectors provide coordinates (in decimal degree format with five significant digits after the decimal) for each collection location. Geographic coordinates are the modern research gold standard. The availability of GPS units and/or smart phones ensure this inclusion does not impose a burden on the collector.

3. ***Collection date (or month):*** Collectors should be required to provide a day-month-year for each collection event. These dates are important for interpreting the life stage or phenology of the species.
4. ***Number collected:*** This field and related subheadings are sufficient and we have no recommendations for change.

SIGNIFICANT DEVIATIONS:

Not Applicable.

EQUIPMENT:

No equipment was purchased.

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